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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/065,740

11/14/2002

Srikanth Akkaram

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03/06/2006

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EXAMINER

SHARON, AYAL I

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/065,740	AKKARAM ET AL.	
	Examiner	Art Unit	
	Ayal I. Sharon	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. Claims 1-29 of U.S. Application 10/065,740, originally filed on 11/14/2002, have been presented for examination.

Drawings

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 1-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.** An invention which is eligible for patenting under 35 U.S.C. § 101 is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a **"useful, concrete and tangible result."**

5. The test for practical application as applied by the examiner involves the determination of the following factors:

a. **"Useful"** - The Supreme Court in *Diamond v. Diehr* requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished. Applying utility case law the examiner will note that:

- the utility need not be expressly recited in the claims, rather it may be inferred.
- if the utility is not asserted in the written description, then it must be well established.

b. **"Tangible"** - Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. § 101. In *Warmerdam* the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium which enabled its functionality to be realized. See MPEP §2106 (A). See also *Schrader*, 22 F.3d at 295, 30 USPQ2d at 1459.

c. **"Concrete"** - Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be

assured. An appropriate rejection under 35 U.S.C. § 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

The Examiner respectfully submits that under current PTO practice, the claimed invention does not recite any result, therefore it does not recite a *useful, concrete, or tangible result*.

6. **Claims 28-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.** The claims, as written, are directed to a “computer program product”. The term “computer program product” can be interpreted as: (1) software *per se*, and (2) functional descriptive material embodied in a physical medium. Examiner has interpreted the term in view of the broadest reasonable interpretation, which includes software *per se*, and therefore is not statutory. The claimed invention is therefore not concrete or tangible. See MPEP §2106 (A), and *In re Warmerdam*, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also *Schrader*, 22 F.3d at 295, 30 USPQ2d at 1459.

Claim Rejections - 35 USC § 112

7. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make

and/or use the invention. The specification does not describe what constitutes the claimed "knowledge rule". One of ordinary skill in the art at the time the invention was made would not know how to make and/or use the claimed invention.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. The prior art used for these rejections is as follows:

10. Lystad et al., U.S. PG-PUB 2005/0192783. ("Lystad").

11. The claim rejections are hereby summarized for Applicant's convenience. The detailed rejections follow.

12. Claims 1-20 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Lystad.

13. In regards to Claim 1, Lystad teaches the following limitations (see especially paragraphs [0017] to [0018], and Fig.1):

1. A method for performing new material development, the method comprising: receiving a user simulation scenario from a user, wherein:

said user simulation scenario is in a-cyclic graph format and includes a plurality of material development modules represented as vertices including a starting

module:

each said vertex includes data information including at least one input file source and at least one output file destination;

relationships between said modules are represented as edges;
each said edge includes at least one of previous module and subsequent module; and

each said edge includes data flow information between said previous module and said subsequent module;

receiving a request to invoke said user simulation scenario, wherein said

request includes said input file source for said starting module; and

traversing said vertices along said edge in response to receiving said request and to said data flow information, wherein said traversing includes executing said modules associated with each said vertex beginning with said starting module in an order specified by said edges and said executing results in data being written to said output file destination for each said vertex.

14. In regards to Claim 2, Lystad teaches the following limitations (see especially paragraphs [0017] to [0020], and Fig.1):

2. The method of claim 1 further comprising creating said user simulation scenario, wherein said creating includes:

receiving said plurality of material development modules and said edges from said user wherein said plurality of material development modules and said edges are selected from a library of available material development modules and associated edges;

verifying that said plurality of material development modules and said edges form a subset of a scenario library;

generating said user simulation scenario in response to said verifying; and
confirming with said user that said user simulation scenario is correct in response to said generating.

15. In regards to Claim 3, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

3. The method of claim 2 wherein said scenario library includes said library of available material development modules and all possible relationships between said material development modules represented in a-cyclic graph format.

16. In regards to Claim 4, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

4. The method of claim 1 further comprising providing the results of said traversing to said user.

17. In regards to Claim 5, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

5. The method of claim 4 wherein said providing includes allowing said user to browse all or a subset of said data written to said output file destination for each said vertex and said input file source.

18. In regards to Claim 6, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

6. The method of claim 4 wherein said providing includes transmitting all or a subset of said data written to said output file destination for each said vertex and said input file source.

19. In regards to Claim 7, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

7. The method of claim 1 further comprising providing said user with access to a common materials development database that includes said data written to said output file destination for each said vertex and said input file source.

20. In regards to Claim 8, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

8. The method of claim 7 wherein said common materials development database includes material related data, design data and integration data.

21. In regards to Claim 9, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

9. The method of claim 7 wherein said common materials development database is in a relational database format.

22. In regards to Claim 10, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

10. The method of claim 7 wherein said common materials development database includes said data information.

23. In regards to Claims 11-14, Examiner finds these claims do not further limit the invention, because they are directed to intended users:

11. The method of claim 1 wherein said user is a designer.

12. The method of claim 1 wherein said user is a material developer.

13. The method of claim 1 wherein said user is a customer.

14. The method of claim 1 wherein said user is a supplier.

24. In regards to Claim 15, Lystad teaches the functionality of the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

15. The method of claim 1 wherein said material development modules include a process and producibility module.

25. In regards to Claim 16, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

16. The method of claim 1 wherein said material development modules include a material module.

26. In regards to Claim 17, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

17. The method of claim 1 wherein said material development modules include a property module.

27. In regards to Claim 18, Lystad teaches the following limitations (see especially paragraphs [0002] to [0031], and Fig.1):

18. The method of claim 1 wherein said material development modules include a cost and performance model.

28. In regards to Claim 19, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

19. The method of claim 1 wherein said material development modules include

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an error propagation model.

29. In regards to Claim 20, Lystad teaches the following limitations (see especially paragraphs [0018] to [0020], and Fig.1):

20. The method of claim 1 wherein said material development modules include a knowledge rule.

30. Independent Claim 28 is rejected on the same grounds as claim 1.

Claim Rejections - 35 USC § 103

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

32. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

33. The prior art used for these rejections is as follows:

a. Lystad et al., U.S. PG-PUB 2005/0192783. ("**Lystad**").

b. Wang, Lihui et al. "A Java 3D-Enabled Cyber Workspace."

Communications of the ACM. Nov. 2002, Vol.45, Issue 11, pp.45-49.

("Wang").

c. Chawla, R. et al. "A Virtual Environment for Simulating Manufacturing

Operations in 3D." Proc. of the 2001 Winter Simulation Conf., Jan. 9-12,

2001. Vol.2, pp.991-997. ("**Chawla**").

34. The claim rejections are hereby summarized for Applicant's convenience. The detailed rejections follow.

35. Claims 21-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lystad in view of Wang and further in view of Chawla.

36. In regards to Claim 21, Lystad teaches the following limitations (see especially paragraphs [0017] to [0018], and Fig.1):

21. A system for performing new material development, ...:
a network;

... wherein:

said user simulation scenario is in a-cyclic graph format and includes a plurality of material development modules represented as vertices including a starting module;

each said vertex includes data information including at least one input file source and at least one output file destination;
relationships between said modules are represented as edges;

each said edge includes at least one of previous module and subsequent module; and

each said edge includes data flow information between said previous module and said subsequent module;

receiving a request to invoke said user simulation scenario via said network, wherein said request includes said input file source for said starting module;

and traversing said vertices along said edges in response to receiving said request and to said data flow information, wherein said traversing includes executing said modules associated with each said vertex beginning with said starting module in an order specified by said edges and said executing results in data being written to said output file destination located on said database component for each said vertex.

However, Lystad does not expressly teach the following limitations:

the system comprising:

a user system in communication with said network;
a first storage device including a database component; and
a first host system in communication with said network and said storage device,
said first host system including an integration component to implement a
method comprising:

receiving a user simulation scenario from a user system via said network ...

Wang, on the other hand, expressly teaches such a distributed computing system for simulating manufacturing processes (see Fig.1, and associated text on p.46). Wang also expressly teaches that the system uses directed acyclic graphs (see p.48, left column, para.3). Chawla also teaches the use of directed acyclic graphs for simulating manufacturing processes (see Abstract and Section 2.1 "3D Data Structure").

It would have obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Lystad with those of Wang and Chawla, because all three references teach methods of simulating manufacturing processes by using directed acyclic graphs.

37. In regards to Claim 22, Wang teaches the following limitations (see Fig.1, and associated text on p.46):

22. The system of claim 21 further including a second host system in communication with said network and wherein said second host system includes one of said plurality of material development modules.

38. In regards to Claim 23, Wang teaches the following limitations (see Fig.1, and associated text on p.46):

23. The system of claim 21 further including a second storage device in communication with said network and wherein a portion of said database component is located on said second storage device.

39. In regards to Claim 24, Wang teaches the following limitations (see Fig.1, and the references to "Web based applications" on p.46):

24. The system of claim 21 wherein said network is the Internet.

40. In regards to Claim 25, Wang teaches the following limitations (see Fig.1, and the references to "Web based applications" on p.46):

25. The system of claim 21 wherein said network is an intranet.

41. In regards to Claim 26, Wang teaches the following limitations (see Fig.1, and the references to "Web based applications" on p.46):

26. The system of claim 21 wherein said network is a LAN. ,

42. In regards to Claim 27, Wang teaches the following limitations (see Fig.1, and the references to "Web based applications" on p.46):

27. The system of claim 21 wherein said network is a WAN.

43. In regards to Claim 29, Lystad does not expressly teaches the following limitations:

29. The computer program product of claim 28 wherein said computer program product is built based on an object oriented framework.

Wang, on the other hand, expressly teaches the use of Java®, which is an object-oriented language. Chawla also teaches the use Java-3D (see Section 2.1 "3D Data Structure").

It would have obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Lystad with those of Wang and Chawla, because all three references teach methods of simulating manufacturing processes by using directed acyclic graphs.

Conclusion

44. The following prior art, made of record and not relied upon, is considered pertinent to applicant's disclosure.
45. U.S. Patent 6,853,952 to Chadwick. (Teaches the use of acyclic graphs in the course of product development. See col.11, lines 14-19.)
46. U.S. PG-PUB 2002/0194044 to Lablanc et al. (Teaches distributed product development).
47. Atkinson, M. and O. Peter Buneman. "Types and Persistence in Database Programming Language." ACM Computing Surveys (CSUR). June 1987. Vol.19, Issue 2, pp.105-170. (Teaches the use of acyclic graphs to model manufacturing processes on pp.115-117).

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a bi-week, 8:30 am – 5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

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or hand carried to:

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
February 28, 2006


Paul L. Rodriguez 3/2/06
Primary Examiner
Art Unit 2125